ABSTRACT OF DISCLOSURE

A free-space adaptive optical laser communication system having signal transmission and reception channels at all terminals in the communication system, wherein wavefront sensing and wavefront correction mechanisms are employed along signal transmission and reception channels of all terminals in the communication system (i.e. adaptive optics) to improve the condition of the laser beam at the receiver (i.e. reduce the size of the spot a the detector plane). Speckle-to-receiver-aperture tracking mechanisms are employed in the transmission channel of the communication system and laser beam speckle tracking mechanism in the reception channels thereof, so as to achieve a first level of optical signal intensity stabilization at signal detector of each receiving channel. Speckle-to-fiber/detector locking mechanisms are also employed in signal receiving channels of all terminals in the communication system so as to achieve a second level of optical signal intensity stabilization at signal detector of each receiving channel.